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ABSTRACT

This paper presents a standard costing model appropriate for determining real costs of programs which are not entirely self-contained. Central to the model is the concept of allocation pools involving resources which are not attributable to a single program or program component, but whose costs must be shared by any given program which is part of an organization. The total costs of a program are categorized as direct, indirect, or inputed costs. Direct costs are readily available in any general ledger system. Indirect costs indicate the level of support of the project from the general organizational level and include program administration, academic support, institutional support, and plant operations. Inputed costs are those which are direct costs of other programs, projects, or schools; which are not charged to the program studied; and which are real assignable costs to the program. Inputed costs may include donated facilities or unpaid lecturers. Mathematical formulae for deriving the real cost of major categories of expenses, such as physical facilities and salaries, are described so that readers may use the model for their own needs. (BW)

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Deriving A Standard Cost Base for Cost/Benefit Comparisons

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Deriving A Standard Cost Base for Cost/Benefit Comparisons

Introduction

This paper presents a standard costing model appropriate for use in determining real costs of programs which are not entirely self contained. That is, those which utilize people or facilities from outside the program and whose own resources may be shared by other programs. Central to the model is the concept of allocation pools involving resources which are not attributable to a single program or program component but whose costs must be shared by any given program which is a part of an organization.

The format of this presentation includes a definition and description of types of costs included in the model, followed by the cost pool concept. Then an elaboration of the kinds of expenses included in each major type of cost will be presented. Mathematical formulae for deriving the real cost of major categories of expenses such as physical facilities and salaries are then described so that readers may use the model for their own needs.

Basic Definitions

The total costs of the projects are categorized into three basic types: direct, imputed, and indirect.

Direct Costs: Sources and Documentation

Direct costs are readily available in any general ledger system. Most users of the ledger will have few problems in identifying direct costs. Figure 1 shows categories of direct expenses. Others may be added by the analyst.

DIRECT EXPENSE CATEGORIES

Salaries and Wages

- Program supported Staff (less other use)
- Organizational supported (non-program) Staff (proportionate share)
- Outside Personnel

Fringe Benefits

Supplies

- Postage
- Office Supplies
- Other Expendable Materials

Equipment

- Office
- A-V (less organizational use charges)

Services

- Telephone
- Printing and Duplicating
- Computer

Travel

Figure 1. Direct Expense categories and Examples of Specific Items.

The first step in the preparation of basic data for the study is to summarize the direct expenses recorded in the general ledger. If total fiscal year expense data are available from the general ledger, the total direct expenses can be summarized as recorded. If the cost study is begun at a point when year-end data are not readily available, a projection to year-end can be calculated using one of the standard conventions.

Useful information can be obtained for analytical purposes by comparing the actual direct expenses with the budgeted expenses for the fiscal year under study. This comparison is beneficial for highlighting significant differences between the budgeted and actual expenses. The expense data can then be adjusted to compensate for significant deviations. For example, the comparison may detect trends in the expense levels at various points during the study period, which may affect the cost data. Projected expense data based on actual expenses, at a point in time which does not consider anticipated but unexpended expenses, must then be adjusted.

Imputed Costs: Sources and Documentation

The next cost category to be considered in the cost analysis is the cost objective's imputed costs. Imputed costs cannot be properly identified as either direct or indirect costs. In this model, imputed costs are those which are direct costs of other projects, programs, or schools; which are not charged to the program studied; and which are real assignable costs to the program. An example of imputed costs are faculty salary expenses not borne by the program, but which are identifiable to the program (as a percentage of total faculty time). These costs are usually for consultative, lecture services, or other similar professional services. These costs are usually available as part of the program's records and should not require much effort to identify and document for cost analysis purposes (see Figure 2 below).

Imputed Costs

- Personnel
- Facilities
- Other Resources

Indirect Costs

- Program Administration
- Building Allowance
- Academic Support
  - Library
  - Administration
- Student Administrative/Services
- Institutional Support
  - Organization Administration
- Plant Operations

Figure 2. Indirect and Imputed Expense Categories and Examples of Specific Items.

Indirect Costs: Sources and Documentation

The last cost category to be discussed is a significant one. No cost study is complete without a proper identification of the indirect costs. While the direct costs state the specific expenses related to the project, indirect costs indicate the level of support of the project from the general organizational levels. Preparation of the direct cost data is a straightforward compilation from existing financial records. Indirect costs, on the other hand, are sometimes intangible or abstract. These costs are often not directly assignable to a program and require a means to allocate or apportion them.

The first step in the calculation of the indirect costs is to identify those costs which are subject to consideration. Most indirect costs are found in the general ledgers at the top organizational level. Exception to this rule, is the use allowance for buildings and equipment. Use allowances provide for an identification of costs related to the buildings and equipment used by the program. These costs are prepared for the entire organization and are generally available from the chief executive officer of the orgarization.

The Cost Pool Concept

Costs which benefit other activities or programs as well as the program under study are categorized into "pools". The cost pool concept segregates and organizes the indirect costs into expenses of a common nature. This permits the analyst to treat each pool as a separate entity for allocation purposes, facilitating the proper distribution of the pooled expenses through an allocation technique. A program benefits from the indirect costs to the extent that it utilizes or shares in these costs proportionally to all other benefitting programs.

Standard Cost Pools in an educational environment are referenced from both the National Association of College and University Business Officers and the Federal Government Circular, OMB A-21. Sufficient latitude in both standard guidelines exists to permit either the exclusion or creation of cost pools which differ from the standards. Examples of cost pools are listed below with a brief description of the costs categorized in those pcols. The pools used in this model are:

Plant Operations and Utility Expenses: This pool includes all costs expended to maintain the physical plant of the organization. All expenses related to building maintenance, custodial services, communications office, landscaping and grounds maintenance, physical plant administration, and utility expenses are organized within this pool.

Public Safety and Security: This pool includes all costs expended for the operation of the security, police, and parking facilities functions of the organization.

Campus Administration: This pool includes all central administrative activities. Among the costs included here are those expended for administration Offices, Budget Office, Purchasing and Warehousing, and the Offices of Personnel and Business Services.

State and Central Expenses: Expenses in this pool are organizational expenses which are allocated to each component of the organization, and represent a major share of the costs of the organization's central administrative activities. The State's central services allocatable to each State agency may be included in this pool if applicable.

Library Expenses: This pool includes all costs identified to the library function.

Academic Support: This pool includes those expenses of the School which provide general administrative or support services to all functions and activities of the School. Among the costs categorized here are those of the Dean's Offices, School libraries, and Media or Audio-Visual services of the School.

Departmental Administration: The expenses in this pool include all administrative expenses at the departmental level which support the major functions or activities conducted within each department, and would include administrative and related support costs of departmental chairpersons.

Student Administration and Services: The expenses in this pool include all school administrative activities related to student affairs and services in accordance with academic appointments or assignments; and the costs expended by the organization's student services (Admissions and Registration, Student Union, Student Health Office, etc).

Use Allowances: These costs are of a non-financial report nature and provide a means to annualize major expenses for capital equipment and renovations. Thereby significant cost fluctuations in the year of acquisition are avoided for equipment use allowances. The building use allowance, on the other hand, provides an inclusion in the cost objective's total costs for the buildings which are occupied by the program. Through the use allowances it is possible to identify expenses of a capital nature in a practical manner. The importance of these costs is evident in subsequent text. Figure three offers an example of use allowances and allocation bases.

Cost of Resource (Building) = $\frac{\text{Organizational share}}{\text{Program share}}$

EG. 1. Proportion of Program vs.
Non-program users.

EG. 2. Square feet in use by Program
X hours.

EG. 3. Square feet in use by Program
and others --
Proportionate share of others =
Proportionate share of Program.

Figure 3. Examples of Proportionate Costs of Resources.

Allocation Bases

Upon completion of the cost pool categorization of the indirect costs to be included, the proper distribution of these costs in a fair and equitable manner must be made. The program only benefits from the indirect support costs in a quantitative, proportional relationship to the support available. The distribution of these costs must reflect the relationship of the program to all other benefitting activities. It is most important to consider only the proper, equitable distribution means for the particular pool.

Allocation bases are quantitative measures than can be applied to the pooled indirect costs to distribute the costs to the program in an equitable manner yet retain the element of practicality. The allocation base may be square feet of space occupied, student and/or faculty population, direct salaries, or total direct costs. Other costs appropriate to the particular cost pool, or to the purposes of the study may also be included. Each cost pool must be evaluated independently during the allocation base selection process.

The allocation process will often involve a primary and secondary allocation of pooled costs. Since the costs to be allocated will probably benefit all organizational activities, a primary allocation to the program must be made. Once the total pool has been distributed at the program level, the secondary allocation to the program which benefit from the indirect cost pool, can be done. This dual allocation process will result in a more equitable, logical distribution of common costs than a single process.

Due to the necessity of viewing allocation bases from an organization-wide level (at least for the primary allocation), determination of the allocation base usually rests with a Cost Accounting Section answerable to the Chief Executive Officer of the organization. Most allocation methods and actual allocation base data are usually available on a regular basis from that section or officer.

Implications

The implications of the model are several. Since it provides for calculation of actual expenses incurred by a program, it is crucial in terms of accurate accountability. Second, in organizations which do not use a cost-center approach, analyses of costs by this or similar means provides the organization with knowledge regarding low- and high-production components. This knowledge provides evaluators with data which are a rational basis for decision-making. A third facet of this model is its generalizability. In whole or in part, it can be utilized to determine costs of most given program activities.